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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,082	12/14/2001	Anders Heyden	003300-877	6112

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EXAMINER

LAVIN, CHRISTOPHER L

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/018,082	Applicant(s) HEYDEN, ANDERS	
	Examiner Christopher L Lavin	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/14/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 20 is/are rejected.
- 7) ☒ Claim(s) 1 - 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. According to MPEP 2114, "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function." In claims 1, 3, 11 and 13 the calculating means is defined by function, and not structure. Therefore nothing after the adopted to clauses is considered patentable material. This extends to all dependant claims that are based upon the nonpatentable material.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1 - 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Avinash (5,561,611) in view of Womack (6,314,212).

6. In regards to claim 1, Avinash discloses a microscope (31) in figure 2 comprising of an object holder (32), optics (34), a digital image sensor (35), and a computer (38) that can be considered to consist of multiple calculating means. It should be noted that all material after the word "adopted" will not be considered for patentability. The primary object of the apparatus disclosed by Avinash is to clean up noise from a microscope's image. Avinash discloses in the paragraph starting at column 8, line 1 that noise clean up is accomplished through Fourier transform filtering. Avinash never specifically states that the spatial frequency (resolution) of the image sensor needs to be higher than the image spatial frequency. It is fairly obvious that an image sensor attached to a microscope should have a resolution of at least the resolution of the microscope to properly capture an image, but never the less a secondary teaching will be provided.

7. Womack teaches in the paragraph starting at column 5, line 66 that the image should be sampled by a CCD camera with "a spatial frequency at least twice that of the highest spatial frequency of interest". For the CCD camera to accomplish this task it must have a resolution of at least twice that of the maximum spatial frequency.

8. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to require the CCD camera to have twice the resolution of the maximum spatial frequency (as taught by Womack) of the microscope apparatus disclosed by Avinash. By keeping the resolution of the camera higher than the maximum spatial frequency no details will be lost in the transition to a digital image.

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9. In regards to claim 2, the apparatus disclosed by Avinash in figure 2 includes a computer with input devices of a mouse and keyboard. In the paragraph starting at column 7, line 40 Avinash discloses that signal data may be examined manually. In the paragraph starting at column 8, line 55 the noise boundary is found. If this is done manually it will require user input through the keyboard and mouse.

10. In regards to claim 3, as noted in the rejection of claim 1, the computer system disclosed in figure 2 by Avinash consists of multiple calculating means. It should be noted that all material after the word "adopted" will not be considered for patentability. However, Avinash discloses in lines 1 – 4, column 8 that an FFT (Fast Fourier Transform) is performed on the recorded image. Then in lines 18 – 24, column 8 Avinash discloses that a cutoff frequency (limit frequency) is determined. This cutoff is the point at which the signal becomes mostly noise, so below the cutoff the image is mainly part of the light energy of the transformed image. The operation that has just been described is a form of filtering.

11. In regards to claim 4, there is no patentable material in this claim as the material depends from a portion of claim 3 that contained no patentable material.

12. In regards to claim 5, as previously shown in the rejection of claim 1, Womack teaches that the spatial frequency of the sensor element is at least 2 times higher than the maximum spatial frequency of the image.

13. In regards to claim 6, as previously shown in the rejection of claim 1, Womack teaches that the spatial frequency of the sensor element is at least 2 times higher than the maximum spatial frequency of the image.

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14. In regards to claim 7, there is no patentable material in this claim as the material depends from a portion of claim 1 that contained no patentable material.

15. In regards to claim 8, there is no patentable material in this claim as the material depends from a portion of claim 1 that contained no patentable material.

16. In regards to claim 9, Avinash discloses in the paragraph starting at column 5, line 40 that "A signal processing system 23 stores the signal g as digital signal data in a memory 24". The final result is then "to an output device 25, which may be an off-line storage device".

17. In regards to claim 10, Avinash discloses in the paragraph starting at column 5, line 40 that the filtered image is "provided to an output device 25, which may be [...] a video display, flat panel display, and so forth".

18. In regards to claim 11, there is no patentable material in this claim as the material depends from a portion of claim 1 that contained no patentable material.

19. In regards to claim 12, there is no patentable material in this claim as the material depends from a portion of claim 1 that contained no patentable material.

20. In regards to claim 13, as noted in the rejection of claim 1, the computer system disclosed in figure 2 by Avinash consists of multiple calculating means. It should be noted that all material after the word "adopted" will not be considered for patentability. However, Avinash discloses in lines 1 – 4, column 8 that an FFT (Fast Fourier Transform) is performed on the recorded image. Then in lines 18 – 24, column 8 Avinash discloses that a cutoff frequency (limit frequency) is determined. This cutoff is the point at which the signal becomes mostly noise, so below the cutoff the image is

mainly part of the light energy of the transformed image. The operation that has just been described is a form of filtering.

21. In regards to claim 14, as previously shown in the rejection of claim 1, Womack teaches that the spatial frequency of the sensor element is at least 2 times higher than the maximum spatial frequency of the image.

22. In regards to claim 15, as previously shown in the rejection of claim 1, Womack teaches that the spatial frequency of the sensor element is at least 2 times higher than the maximum spatial frequency of the image.

23. In regards to claim 16, as previously shown in the rejection of claim 1, Womack teaches that the spatial frequency of the sensor element is at least 2 times higher than the maximum spatial frequency of the image.

24. In regards to claim 17, as previously shown in the rejection of claim 1, Womack teaches that the spatial frequency of the sensor element is at least 2 times higher than the maximum spatial frequency of the image.

25. In regards to claim 18, there is no patentable material in this claim as the material depends from a portion of claim 1 that contained no patentable material.

26. In regards to claim 19, there is no patentable material in this claim as the material depends from a portion of claim 1 that contained no patentable material.

27. In regards to claim 20, Avinash discloses in the paragraph starting at column 5, line 40 that "A signal processing system 23 stores the signal g as digital signal data in a memory 24". The final result is then "to an output device 25, which may be an off-line storage device".

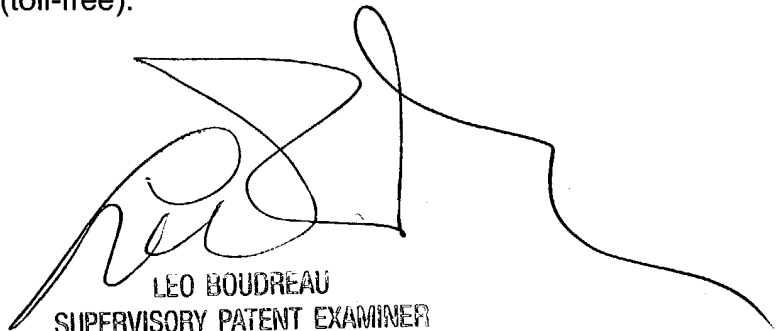
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher L Lavin whose telephone number is 703-306-4220. The examiner can normally be reached on M - F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLL



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